

In the Drawings

Replace sheet 3 with Fig. 3 with the appended two sheets of drawings with FIGS. 3-6.

## **REMARKS**

By the present Amendment, claims 1-9 are cancelled and claims 10-45 are added. This leaves claims 10-45 pending in the application, with claims 10, 22 and 34 being independent.

### **Substitute Specification**

The specification is revised to eliminate grammatical and idiomatic errors in the originally presented specification. The number and nature of the changes made in the specification would render it difficult to consider the case and to arrange the papers for printing or copying. Thus, the substitute specification will facilitate processing of the application. The substitute specification includes no "new matter". Pursuant to M.P.E.P. § 608.01(q), voluntarily filed, substitute specifications under these circumstances should normally be accepted. A marked-up copy of the original specification is appended hereto.

### **Information Disclosure Statement**

Submitted herewith is a copy of the International publication cited in the specification and noted in the Office Action, along with the appropriate listing of that patent. Applicant requests that such International publication be made officially of record in this application.

### **Modification of Drawings**

By the present Amendment, Fig. 3 is corrected and new drawing Figs. 4-6 are added.

In Fig. 3, the appropriate identifying legend of "Fig. 3" is added.

Figs. 4-6 are provided to more clearly illustrate the three forms of the end surfaces of the adhesion element heads, as disclosed in the originally filed application, particularly in the paragraph spanning pp. 8-9 and original claim 7 of the application. This illustration of the

essentially flat end surface of Fig. 4, and the graphical illustrations of the concavity in Fig. 5 and the convex curvature in Fig. 6 are fully and adequately supported by the description contained in the application as originally filed. Appropriate descriptions for these new drawings are included in the substitute specification.

Accordingly, acceptance and addition of these drawings into the application is requested.

#### Rejections under 35 U.S.C. §102 and §103

Each of the presently pending independent claims, claims 10, 22 and 34, recite a process for producing adhesion elements on a substrate. The process comprises steps of introducing plastic material into at least one shaping element, and forming the plastic material into adhesion elements with flared ends accomplishing adhesion predominantly by van-der-Waals forces, and with the flared ends forming heads. Claim 10 further recites that the heads are formed with essentially flat end surfaces. Claim 22 further recites that the heads are formed with slightly convex end surfaces. Claim 34 further recites that the heads are formed with end surfaces having concavity.

By performing the process in this manner, the adhesion elements are formed so as to adhere to other surfaces as a result predominantly of van-der-Waals forces, not with interlocking with mating adhesion element in the nature of a hook-and-loop type fastener, also called a “Velcro” fastener. Such predominant adhesion by van-der-Waals forces is achieved without the defibrillation of adhesion stems formed according to a biomedical model based on a geckos foot.

Claims 1, 2, 4, 5, 7 and 9 stand rejected under 35 U.S.C. §102 as being anticipated by DE 100 39 937 A1 to Tuma (with U.S. Patent No. 7,198,743 being relied upon as an English equivalent thereof). The Tuma patent is cited for a process for making adhesive elements on a

substrate by being introduced into a shaping element, with the adhesive elements having flared ends formed with adhesion allegedly accomplished predominantly by means of van-der-Waals forces. The van-der-Waals forces are stated to be inherent by the ability of plastic materials to adhere to one another by the attraction of protons in one to the electrons and the other. The materials and elastomers of claim 2, the density of claim 4, the hyperboloid mold cavity of claim 5, the slightly convex shape of claim 7 and the crosslinking of claim 9 are allegedly disclosed in the Tuma patent.

Claim 3 stands rejected under 35 U.S.C. §103 as being unpatentable over the Tuma patent in view of U.S. Patent No. 7,018,496 to George. The George patent is cited for a plastic material that is thixotropic and has a viscosity of 7,00 to 15,000 mPas. In support of the rejection, it is alleged that it would be obvious to use the George material in the Tuma method.

Claim 6 stands rejected under 35 U.S.C. §103 as being unpatentable over the Tuma patent in view of U.S. Publication No. 2003/0124303 to Price. The Price publication is cited for a plastic material having a contact angle which is at least the value of 60 degrees and preferably greater than 70 degrees due to the surface energy for wetting water (see paragraph [0108]). In support of the rejection, it is alleged that it would be obvious to use the Price plastic material in the Tuma device.

Claim 8 stands rejected under 35 U.S.C. §103 as being unpatentable over the Tuma patent in view of WO 01/49776 to Full (with U.S. Patent No. 7,229,683 being relied upon as an English equivalent thereof). The Full publication is cited for the use of an adhesive part having the claimed dimensions. In support of the rejection, it is alleged that it would be obvious to modify the Tuma adhesive elements to provide the dimensions disclosed in the Full publication.

The cited Tuma patent only discloses an adhesive closing element for forming a fastener interlocking with another mating connector of a hook-and-loop type. Nothing in the record supports the allegation that van-der-Waals forces are inherent in the Tuma basic closing element. Particularly, the Tuma patent does not establish that any van-der-Waals forces that may exist are in fact “predominant”, as required in each of the independent claims of this application. This forming of the adhesion elements accomplishing adhesion predominantly van-der-Waals forces patentably distinguish the pending claims over the cited Tuma patent, as well as the other cited patents.

Additionally, the various independent claims are further distinguished by the specific configurations of the end surfaces of the heads formed by the flared ends. Particularly, the flat end surface of claim 10, the slightly convex end surface of claim 22 and the concavity of claim 34 are not disclosed or rendered obvious for an adhesion element accomplishing adhesion predominantly by van-der-Waals forces.

Claims 11-21, claims 23-33 and claims 35-45, being dependent upon claims 10, 22 and 34, respectively, are also allowable for the above reasons. Moreover, these dependent claims recite additional features further distinguishing them over the cited patents.

Claims 11, 23 and 35 are further distinguishable by the specific materials recited therein. Such materials are not disclosed or rendered obvious for forming an adhesion element accomplishing adhesion predominantly by van-der-Waals forces.

Claims 12, 24 and 33 are further distinguishable by the plastic material being fixed or tropic and having a viscosity, as recited, to form adhesion elements accomplishing adhesion predominately van-der-Waals forces.

Claims 13, 25 and 37 stand rejected by the specific viscosity of the plastic material for forming adhesion elements accomplishing predominately by van-der-Waals forces. The George patent involves a hook-and-loop fastener, not one using van-der-Waals forces predominantly.

Claims 14, 26 and 38 are further distinguishable by the screen having at least 10,000 mold cavities per  $\text{cm}^2$ . Relative to this limitation, the disclosure of 500 cavities per  $\text{cm}^2$  in the Tuma patent is cited. However, the significant difference in number results in the new and unobvious effect of producing adhesion elements accomplishing adhesion predominantly by van-der-Waals forces. Such predominant adhesion is not shown to be provided by the significantly different lower number in the Tuma patent. Nothing in the record supports the allegation that it would be obvious to vary the size and number of adhesion elements disclosed in the Tuma patent by the orders of magnitude necessary in order to provide the claimed range and the new and unobvious result of adhesion predominantly by van-der-Waals forces.

Claims 15, 27 and 39 are further distinguishable by the shaping element having 16,000 mold cavities per  $\text{cm}^2$ . Such claims are distinguished for reasons similar to those advanced above relative to claims 14, 26 and 38.

Claims 16, 28 and 40 are further distinguishable by their hyperboloid shape, which is not shown to be obvious in connection with adhesion elements accomplishing adhesion predominately by van-der-Waals production in the Tuma patent.

Claims 17-18, 29-30 and 41-42 are further distinguishable by the contact angle of the plastic material recited therein. Such contact angle is not disclosed to be obvious for use in connection with adhesion elements accomplishing adhesion predominately by van-der-Waals forces. Paragraph [0108] of the Price patent publication only discloses "contact angles less than

90° designated 'wetable'..." and does not disclose the specific angle ranges recited in these claims. Moreover, such angles in the Price patent publication relate to the non-analogous fibers in retention portion 70 that does not relate to a fastener or to adhesion elements.

Claims 19-20, 31-32 and 43-44 are further distinguishable by the specific dimensions of the head adhesion elements so as to provide adhesion predominantly by van-der-Waals forces. Such different result renders the claims non-obvious since nothing in the Full publication discloses forming adhesion elements with these dimensions without forming seta to provide this novel and unobvious result.

Claims 21, 33 and 45 are further distinguishable by crosslinking of the plastic material. Crosslinking of the plastic material is not obvious for adhesion elements accomplishing adhesion predominately by van-der-Waals forces.

In view of the foregoing, claims 10-45 are allowable. Prompt and favorable action is solicited.

Respectfully submitted,



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